Learnzy Academy

Worksheet: Electricity

1. How is the resistivity of alloys compared with those of pure metals from which they may have been formed?
2. Why does the cord of an electric heater not glow while the heating element does?
3. Why are coils of electric toasters and electric irons made of an alloy rather than a pure metal?
4. An electric iron of resistance 20 Ω takes a current of 5 A. Calculate the heat developed in 30 s.
5. A current of 1 A is drawn by a filament of an electric bulb. Number of electrons passing through a cross section of the filament in 16 seconds would be roughly.
6. Calculate the resistance of a metal wire of length 2 meters and cross-sectional area 1.55 × 10■■ square meters, if the resistivity of the metal is 2.8 × 10■■ ohm meter.
7. Will current flow more easily through a thick wire or a thin wire of the same material, when connected to the same source? Why?
8. Calculate the number of electrons constituting one coulomb of charge.
9. How much energy is given to each coulomb of charge passing through a 6 V battery?
10. What are the advantages of connecting electrical devices in parallel with the battery instead of connecting them in series?
11. Let the resistance of an electrical component remains constant while the potential difference across the two ends of the component decreases to half of its former value. What change will occur in the current through it?
12. Calculate the resistivity of the material of a wire of length 1 m, radius 0.01 cm and resistance 20 ohms.
13. Why are alloys commonly used in electrical heating devices ?
14. Compute the heat generated while transferring 96000 coulomb of charge in one hour through a potential difference of 50 V
15. What is meant by saying that the potential difference between two points is 1 V?
16. List the factors on which the resistance of a conductor in the shape of a wire depends.
17. On what factors does the resistance of a conductor depend?
18. Name a device that helps to maintain a potential difference across a conductor.
19. What is the maximum resistance which can be made using five resistors each of 1/5 Ω ?
20. Define the unit of current.